

CLAIMS:

5 1. A method of compensating for carrier frequency and phase errors of a received multi-carrier modulated signal, the received multi-carrier signal including modulated carriers for transmitting known data and unmodulated carriers for error correction, comprising:

10 time domain down converting the received multi-carrier signal to base-band to provide a down-converted signal, the down-converted signal including a plurality of modulated carriers for transmitting known data and unmodulated carriers for error correction;

15 sampling an unmodulated carrier of the down-converted signal to provide received data samples;

providing a reference signal derived from the unmodulated carrier of the down-converted signal; and

20 estimating phase errors from a phase difference between the unmodulated carrier and the reference signal derived from the unmodulated carrier of the down-converted signal to provide a plurality of received sample phase error estimates for each modulated carrier.

25 2. A method of compensating for carrier frequency and phase errors of a received multi-carrier modulated signal, the received multi-carrier signal including modulated carriers for transmitting known data and unmodulated carriers for error correction, comprising:

30 time domain down converting the received multi-carrier signal to base-band to provide a down-converted signal, the down-converted signal including a plurality of modulated carriers for transmitting known data and unmodulated carriers for error correction;

35

sampling an unmodulated carrier of the down-converted signal  
to provide received data samples;

5 providing a reference signal derived from the unmodulated  
carrier of the down-converted signal;

estimating phase errors from a phase difference between the  
unmodulated carrier and the reference signal derived from the  
unmodulated carrier of the down-converted signal to provide a  
10 plurality of received sample phase error estimates for each  
modulated carrier;

coherently adding each of the plurality of received sample  
phase error estimates to one of the plurality of modulated  
carriers for transmitting known data to provide a compensated  
15 down-converted signal; and

frequency domain converting the compensated down-converted  
signal suitable for DSP signal processing.